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CORRES. CONTROL
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| DIST. | LTR | ENC |
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| BENEDETTI, R.L. | | |
| BENJAMIN, A. | | |
| BERMAN, H.S. | | |
| CARNIVAL, G.J. | | |
| COPP, R.D. | | |
| CORDOVA, R.C. | | |
| DAVIS, J.G. | | |
| FERRERA, D.W. | | |
| FRANZ, W.A. | | |
| HANNI, B.J. | | |
| HEALY, T.J. | | |
| HEDAHL, T.G. | X | |
| HILBIG, J.G. | | |
| HUTCHINS, N.M. | | |
| KIRBY, W.A. | | |
| KUESTER, A.W. | | |
| MAHAFFEY, J.W. | | |
| MANN, H.P. | | |
| MARX, G.E. | | |
| McKENNA, F.G. | | |
| MORGAN, R.V. | | |
| PIZZUTO, V.M. | | |
| POTTER, G.L. | | |
| SANDLIN, N.B. | | |
| SATTERWHITE, D.G. | | |
| SCHUBERT, A.L. | | |
| SETLOCK, G.H. | X | |
| SULLIVAN, M.T. | | |
| SWANSON, E.R. | | |
| WILKINSON, R.B. | | |
| WILSON, J.M. | | |
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Reviewed for Addressee
Corres. Control RFP

1-25-94 DATE BY

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DOE ORDER # 5400.1

RF-46522 (Rev. 9/93)

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**Department of Energy**
**Rocky Flats Office**

JAN 25 1 01 PM '94

JAN 24 1994

EPD:PMP:00218

Non-Subpart D Environmental Assessment Determination for OU 4 Remediation

C. M. Borgstrom, Director, Office of NEPA Oversight, EH-25

We are writing to submit an environmental assessment determination for an Interim Measure/Interim Remedial Action for OU 4 Solar Ponds recently completed by the Rocky Flats Office for your review. A copy of the Action Description Memorandum used in making the determination is also attached for your information.

Mark N. Silverman
Manager

Attachment

cc w/Attachment:
R. S. Scott, EM-20
L. E. Harris, EM-431
A. Rampertaap, EM-453
P. M. Powell, RFO
S. M. Nesta, EG&G

DOE NEPA REGULATIONS SUBPART D
ENVIRONMENTAL ASSESSMENT DETERMINATION
Interim Measure/Interim Remedial Action for OU4 - Solar Ponds

**Based upon the description of the project contained in the attached Action Description Memorandum, I have determined that the proposed action fits the description of an action requiring the preparation of an environmental assessment as defined in 40 CFR 1508.9. Therefore, I approve the preparation of an environmental assessment of the proposed action.**

Date: 1/21/94

Signature: _____
Mark N. Silverman
Title: Manager, Rocky Flats Office

**Project Sponsor:**
**I concur with the recommendation to prepare an environmental assessment.**

Date: 1/19/94

Signature: _____
Martin McBride
Title: Acting Assistant Manager for Environmental Restoration

**I have reviewed the project description and recommend an environmental assessment as the appropriate level of NEPA documentation.**

Date: January 11, 1994

Signature: _____
Patricia M. Powell
Title: NEPA Compliance Officer

Regulatory citation:

____ This EA is listed in 10 CFR 1021, Appendix C to Subpart D as C__.

_X_ This EA is not listed in 10 CFR 1021, Appendix C to Subpart D

# ACTION DESCRIPTION MEMORANDUM FOR INTERIM MEASURE/INTERIM REMEDIAL ACTION AT OU 4 (SOLAR PONDS)

## 1.0 INTRODUCTION

This Action Description Memorandum has been prepared to assist in determining the proper level of National Environmental Policy Act documentation for remedial actions to be taken at Operable Unit (OU) 4 at the Department of Energy's Rocky Flats Plant (RFP) north of Golden, Colorado.

## 2.0 PURPOSE OF AND NEED FOR THE PROJECT

OU 4 is one of 16 operable units at RFP and is identified as the Solar Evaporation Ponds. The five ponds are located in the northeast quadrant of the developed area of the plant site as shown in Figure 1. The ponds, constructed at various times, were used to hold liquid wastes while the liquids were allowed to evaporate. It is believed that the ponds, which were lined, leaked, allowing contaminated liquids to enter the underlying soil. Three of the five ponds are empty while the remaining two ponds contain contaminated liquids and sludge. The pond lining material, remaining sludge, underlying soil that has been contaminated, and a metal building with its associated components located in the pond area are to be remediated under provisions of, and as required by, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act and the Inter-Agency Agreement between the Department of Energy, Colorado Department of Health and the Environmental Protection Agency.

## 3.0 PROPOSED ACTION

Because preparation of the Phase 1 Interim Measure/Interim Remedial Action Decision Document for OU 4 has not yet begun, neither has identification of a preferred remedial action. Preliminary work on alternative remedial actions has resulted in development of two conceptual alternatives: covering and removal.

### Covering the Ponds

Covering the ponds would require an estimated 100,000 cubic yards of clean fill, assuming that the ponds would have to be excavated to an average depth of 5 feet. Shallower average excavation depths, or not having to excavate certain ponds at all, could reduce that figure. The necessary fill material would, preferably, be taken from one or more locations at RFP. Potential locations and acreage have not been identified. The entire approximately 12-acre (4.9 hectare) area of OU 4 would be covered with the fill material which would be graded to provide positive drainage away from the site.

The various pond-related components would be left in place, or removed, treated and returned to the ponds. The components would then be covered with a cap. The pond-related components consist of pond liners, consisting of various combinations of asphalt, concrete, wood, gravel, membrane liner and other materials, remaining sludge and the concrete foundation and floor of Building 788. Related items at Building 788 include containers of pond-related waste, two cement silos, a clarifier tank, pug mill, mixer and an approximately 8-foot by 30-foot trailer used as break trailer by workers on the pondcrete project. Except for the containers of waste, these items and the

metal building itself would be decontaminated if necessary and removed from the area for reuse or other disposal. All contaminated material not placed back in the pond area prior to placement of the cover would be stored in existing facilities or shipped off-site as it is generated.

Underground and above-ground utilities that could interfere with the long-term operation of the cover would be relocated or removed. Grading would take place at the north edge of the ponds to relocate soils now in the north berm of ponds 207A and 207B North to the adjacent hillside from which they were originally taken to enhance drainage. Excess soil would be used as fill material for the ponds.

The cover could consist of 1) fill material, 2) a protective cover such as a tarp or flexible membrane liner over the fill to minimize erosion and infiltration of precipitation, or 3) an engineered cover, such as a membrane liner over a layer of clay, over the fill to provide an impermeable barrier. In the case of the engineered cover, a drainage layer, a filter fabric and a layer of topsoil would be placed on top of the membrane liner. The topsoil would be seeded unless the protective cover were applied. Topsoil would be in addition to the clean fill and could come from on- or off-site locations.

### Removal of the Ponds

The second alternative is removal and would involve removal of all contaminated material from the pond area, storage of the material elsewhere at RFP pending a later program to treat it or send it off site for permanent disposal, regrading of the berms north of ponds 207A and 207B North, and placement and seeding of a cover over the 12-acre pond area. The material to be removed would consist of approximately 10,000 cubic yards of pond lining, between approximately 5,500 and 33,000 cubic yards of soils excavated from between 6-inches and 3-feet deep, approximately 3,000 cubic yards of residual sludge and an unestimated but relatively small volume of rubble from Building 788 and its related equipment described above. Under the removal alternative, these wastes, plus liquid waste from soil washing, are estimated to total between 35,000 and 68,000 cubic yards after packaging, based on current understanding of the possible size of the project.

The volume of material removed from the ponds would increase the volume of clean fill needed for the cap in order to have a cap with a shape that provides drainage to its perimeter. At the same time, if all or most of the contaminated material were replaced in the ponds, the cover, though including the same acreage, would be thinner and therefore require less fill material. Under the removal alternative with little if any material returned to the ponds, up to 133,000 cubic yards of clean fill could be required for the cap.

Treatment of contaminated material may take place as part of this project or may be deferred to an unspecified later time. Treatment could include vitrification, solidification, bio-denitrification, precipitation, soil washing/extraction or adsorption and could be applied to just the residual sludge and soils, or to the sludge, soils, liners and rubble from the foundation and floor of Building 788. As indicated above, treated material would be disposed of by one or a combination of three means: replacement in the ponds prior to installation of the cap, storing it elsewhere at RFP pending final disposal on- or off-site, and/or putting material that is sufficiently clean in the RFP landfill. Equipment that is, or can be made, sufficiently clean would be reused or otherwise recycled.

## 4.0 Potential Environmental Impacts

### Destruction of habitat

Habitat would be destroyed in the area(s) from which the up to 133,000 cubic yards of clean fill were taken. Potential borrow sites have not been identified, but removal of the required fill material would temporarily destroy habitat for flora and fauna and the existing natural soil horizons. It is planned that the material would be removed in a manner that would minimize long-term impacts by such procedures as:

- excavating only above the groundwater table to avoid affecting groundwater;
- grading and revegetating borrow areas to be consistent in appearance with adjacent lands; and
- avoiding excavation in sensitive area such as wetlands, floodplains, and areas that potentially provide habitat to threatened or endangered species or other species of concern.

The area of Solar Ponds provides very little natural habitat, having been an industrial site for more than 30 years. The severely disturbed nature of the environment around the Solar Ponds is home to weedy plant species as well as rodents including mice, deer mice and rabbits.

### Groundwater

It is expected that excavations at, or for, OU 4 would be shallow enough to avoid coming in contact with the water table either at the OU or at the site(s) from which the clean fill would be taken, leaving groundwater unaffected.

Covering 12 acres with an impermeable cap brings with it the possibility of affecting groundwater levels and flows immediately below. Any consequences of this possible impact would be largely eliminated by the fact that runoff from the impermeable cap would be able to enter the groundwater around the perimeter of the cap. Thus, the total volume of water available to percolate to the groundwater table would remain the same.

There is a system of French drains on the down-gradient (north) side of the Solar Ponds between the Ponds and Walnut Creek called the interceptor trench system. This system collects water that has leaked from the Ponds and transports it to a treatment plant for evaporation or for treatment prior to discharge to Walnut Creek. Installation of a cap would not be expected to affect operation of the interceptor trench system.

### Human Health

Removal of contaminated pond lining material, excavation of contaminated soils and demolition and decontamination of Building 778 and the related equipment carry with them the potential for exposure of workers and, to a lesser extent the public, to the contaminants. This potential is expected to be kept well within acceptable levels by various operating procedures common at RFP including dust suppression, appropriate levels of personal protective equipment and implementation of appropriate procedures for handling, storing and inspecting contaminated materials before and after they are placed in containers.